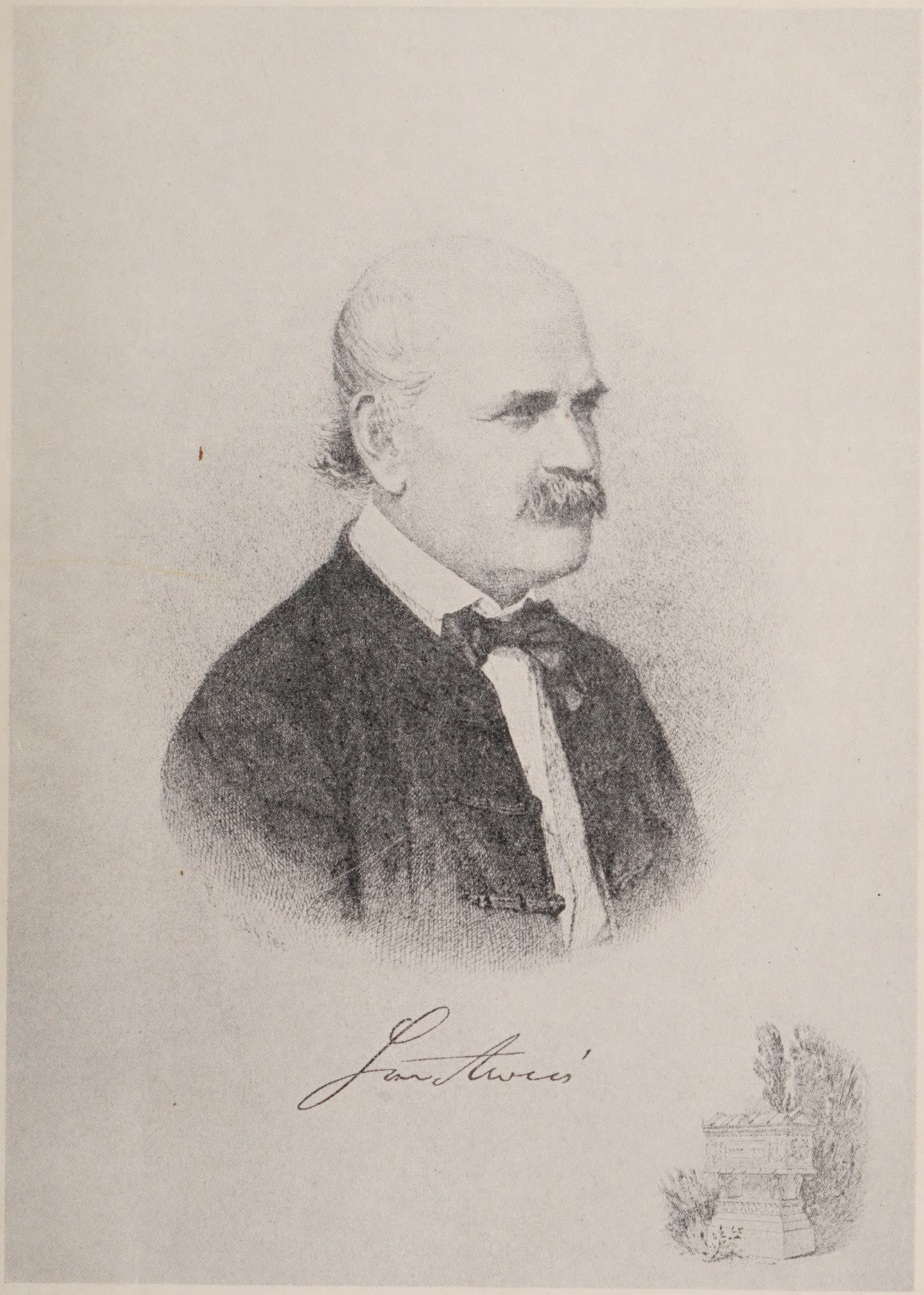
SEMMELWEIS, I. P.



Ignatz Philip Semmelweis

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It has been said that we see far when we stand on the shoulders of our predecessors. This is but another way of saying that if we are to understand the problems of today we must know the happenings of yesteryear—we must know history.

Carlyle tells us that history is the essence of innumerable biographies. May I invite your attention to a biographical sketch of one of the most tragic characters in the history of medicine; a man who sacrificed his happiness, his reason and his life for an idea.

From the beginning of time stark tragedies have stalked the road to progress. In every age since history was written there have been men of vision who have evolved new ideas, new truths that have run counter to traditional beliefs and practices. Such men have too often been the targets of controversy and strife and no where is this more in evidence than in the transition from primitive to modern obstetrics.

Galen, whose contributions to obstetrics were not impressive, was fiercely assailed by his colleagues, and against his adversaries he defended his theories with a vigor and acrimony that has seldom been equalled. Impatiently he turned to the laity "who," he said, "at least had common sense, which was wanting in the sophist physicians. These opponents," said he, "differed from bandits only that the doctors practiced in Rome and the bandits in the forests."

Andreas Vesalius of Brussels, was first to demonstrate that the uterus, formerly regarded as bilocular or multilocular, is, in reality, a single chamber. He literally robbed the gibbet and the grave in dissecting the body of a pregnant woman who had been condemned to the gallows. His dissections brought upon him the wrath of the clergy who contended that the body of man is the temple of the Soul and to invade it with the dissecting knife is sacrilege.

Vesalius abandoned the dissecting room and burned his manuscript. His DE FRABICA HUMANI CORPUS revolutionized the study of human anatomy but was not accepted by the medical profession 'till long after his death.

Leonardo Da Vinci, artist and anatomist of the 15th century, depicted for the first time the normal attitude of the fetus in utero. Drawn with the utmost fidelity to scientific accuracy and artistic beauty his drawings were in marked contrast to the ludicrous positions which appeared in the ROSENGARTEN. For his dissections he, too, was roundly denounced by the clergy.

It was in this period of scientifiic awakening that modern obstetrics had its birth; when the untutored midwife, the priest physician and the barber surgeon gave way to men trained in the art of delivery. In their hands superstition, ignorance and religious bigotry were the common clay out of which modern obstetrics was moulded.

William Harvey, called by Aveling, the Father of British Midwifery, in appreciation of his chapter on "Labour," was regarded by his envious colleagues as a crack brain. "They would not give a three-pence for his pills." After publishing his immortal work on the circulation of the blood, Harvey is quoted as saying: "I not only fear injury to myself from the envy of the few, but I tremble lest I have mankind as my enemy." The calumny heaped upon Harvey caused his practice to fall off and we find him loathe to publish his classic work, GENERATION OF ANIMALS, recalling the contentious reception of his immortal work on the circula-

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tion of the blood. "Much better," said he, "is it often times to grow wise at home and in private than by publishing what you have amassed with infinite pains to stir up unrest that may rob you of peace and quiet for the rest of your days." Harvey's most violent adversaries proved that eternal opposition could procure a certain kind of immortality.

For five generations the Chamberlain family was discredited and viciously attacked by the medical profession for withholding the secret of the "iron tongs." While deploring their secretiveness it is only fair, as Aveling has said, to bear in mind that the Chamberlains lived at a time when it was common practice to withhold secrets of healing nostrums, when doctors in high repute extolled the virtues of mysterious healing potions.

Dr. John Burton, famed in Tristam Shandy for his forceps, defied his critics with scathing sarcasm. In defiance of his adversaries he writes: "But for those people who like Birds of Night scream in the dark, when none can see them; and like cowardly enemies, unseen, shoot their envenomed darts at me in secret whispers or anonymous papers, such creatures may split their malignant choler, till it consumes themselves, before I shall regard them in the least."

William Smellie had the indomitable Mrs. Nihell to contend with. Mrs. Nihell, of the hay market, was the doughty and uncompromising champion of a lost cause. Defending the midwife in her divine right to monopolize the practice of midwifery to the exclusion of the man midwife Mrs. Nihell chose Smellie as her target whose forceps were "not so delicate as a woman's hands." If Smellie, "Master of British Midwifery," could be discredited his murderous instrument would pass with him. Smellie suffered the usual hardships of a pioneer and crusader. In combating the superstitions and vicious practices of the midwives of his time he was subjected to the scurrilous attacks of those whose methods he condemned; attacks that did not end with the death of Smellie but continued on for an hundred years.

In the 16th century Dr. Veitis of Hamburg, Germany, was condemned to the flames for attending a woman in labor while in our own land, as late as 1754, Dr. James Lloyd of Boston was roundly denounced for immorality and licentiousness in a similar performance of his professional duties. But the calumny heaped upon him was as nothing compared to that meted out to James P. White as an aftermath of an obstetrical clinic held at the University of Buffalo, New York, in 1850.

White was charged with the commission of acts of outrage against the rights of the community, against decency and propriety. He was libeled by the press and bitterly assailed by members of the medical profession. At the trial which followed, it was contended that the exposure of the body of a parturient woman was wholly unnecessary to the successful conduct of the delivery; that to so expose a parturient woman to the vulgar gaze of the public is a "shock to the moral sensibility, diminishes the moral feeling, and debases the moral man." The vindication that ultimately came to Dr. White resulted in the establishment of the first obstetric teaching clinic in America.

Ephram McDowell, our American frontier surgeon of Danville, Kentucky, performed thirteen ovariotomies with eight recoveries at a time when anesthesia and antiseptics were unknown. His report of the first three operations appeared in 1817 and brought forth a storm of ridicule and skepticism. The veracity of McDowell was questioned by James Johnson, editor of the London Medico-Chirurgical Review, while others referred to the operation as brutal butchery and cruel. McDowell did not live to enjoy the fruits of his labors, a fate shared by many a benefactor of the human race. It was more than a century after his death that the profession fully realized that "pelvic and abdominal surgery began with ovariotomy and ovariotomy began with Ephram McDowell, the backwood's surgeon."

William Hunter became the target of an outraged public opinion because of his anatomical dissections, as did William Shippen, Jr., America's pioneer anatomist and obstetrician. Shippen was berated and threatened with violence for exposing

women in labor to the vulgar gaze of the midwives and doctors.

Sir James Y. Simpson was vigorously attacked by the medical profession that held to the age-old dictum that pain in labor is salutory and a conservative manifestation of life. He was excorciated by the clergy for defying the Almighty, for was not the pain of childbirth an ordinance of Divine Providence? Simpson will be remembered for his heroic efforts in overcoming all opposition to the relief of pain in childbirth. Let those who would pass ill-advised judgment upon the deeds of others mind the words of the discreet Simpson: "Obstetrics," said he, "is not one of the exact sciences, and in our penury of truth we ought to be accurate in our statements, generous in our doubts, tolerant in our convictions. Without these qualities science cannot be promoted nor truth educed." Patience, tact and perseverence were the secrets of Simpson's success. The contributions of Simpson and Semmelweis to obstetrics and surgery were made but a few weeks apart in the year 1847.

In the history of midwifery there is a dark page and it is headed SEMMELWEIS. So wrote Fritch of Breslau. The page is dark because no man in the annals of medicine contributed more to the saving of lives and suffered more grievously at the hands of carping contemporaries. Semmelweis refused to be chained to the dogmas of a dead past, to the vagaries and the pedantry of the obstetricians of his time, and for his pains he was driven to the mad house. But with all this he was left a priceless heritage and deserves well to be remembered on this, the one hundredth anniversary of his contribution to obstetrics.

"He was one of those mortals who was not always happy," wrote Markusorsky, "but he was favored by fate, inasmuch as it was given to him to enrich science with a new idea and thereby to confer upon humanity an immeasurably important service."

The name Semmelweis will ever be associated with that of puerperal sepsis for it is to him, more than to any other individual, that credit is due for being the first to demonstrate through clinical and anatomical observations the etiology and the prophylaxis of the malady. The disease was not unknown to the earliest writers on medicine, to Hippocrates, Celsus, Avicenna, Pater, Sylvius and Willis, but no mention was made by these authors of epidemics, nor does it appear that they were impressed with the seriousness of the malady.

The earliest reference to epidemic puerperal fever was made by M. Peu of Paris in 1646. He wrote of an epidemic that occurred in the Hotel Dieu of Paris in 1646 when scarcely a woman survived the disease. Later, Pinard referred to an epidemic in the same institution in 1778 that took the lives of seven out of twelve parturient women. Staff members counseled over what they called "the bothersome epidemic," and out of their deliberations and their findings at the postmortem table the milk theory was evolved. From then on milk was banned from the hospital—but the epidemic swept on.

There were other theories evolved as epidemics swept through maternity wards in Dublin, Edinburgh, London, Vienna, Prague, Paris, and indeed throughout all continental Europe and Britain. There were the theories of over crowding, of foul air, of errors in diet, of emotional influences, of gastric bilious fever, of inflammation of the pelvic organs and peritoneum, of miasma of the blood, of genus epidemicus, of lochial suppression and atmospheric, telluric, cosmic influences. All these and more were the theories advanced by men eminent in the field of obstetrics as late as the middle of the 19th century. Out of all this hodge-podge and welter of theory and conjecture there was finally evolved a reasonable and tangible hypothesis that led to effective measures of prevention—this was the contributions of Charles White, Alexander Gordon, Oliver Wendell Holmes, and Semmelweis. They were the men who "traveled along unknown paths that later became open thoroughfares."

Charles White of Manchester, England, almost a century before the time of Semmelweis, argued that childbed fever was a process of self poisoning due to the ab-

sorption of the pent-up lochial secretions. As preventive measures he introduced the sitting posture to facilitate drainage, lime disinfection of the hands, clean linens, isolation of infected cases and adequate ventilation of the wards of the Manchester Infirmary. And he boasted that under these restrictions not a death from puerperal sepsis occurred in his clinic.

That White anticipated antisepsis long before the time of Lister is evidenced by the following quotation from his TREATISE ON THE MANAGEMENT OF PREGNANT AND LYING-IN WOMEN (London, 1772): "I must not omit to mention in this place," said he, "the good effects I have experienced from emollient or antiseptic injections into the uterus, by means of a large ivory syringe, or an elastic vegetable bottle—I have, by this means, known the fever much assuaged, and, in many cases, wholly extinguished." White was first to recognize the entity of "milk leg," —later known as phlemasia albadolens.

Thomas Kirkland succeeded White in the Manchester Infirmary and made similar claims, as did Robert Collins in the Dublin Rotunda. So much from the British point of view on the mooted question of priority.

Why, then, we ask, did White fail to receive more generous recognition for his contribution to the solution of this vexed problem? The answer, in part, seems to be in the facts that White, unlike Semmelweis, lived in comparative obscurity far removed from the cross roads of medical progress. But more than all he did not possess the zeal of an evangelist—willing, if need be, to suffer martyrdom for a cause.

Closely following upon White came Alexander Gordon of Aberdeen, who in 1795 published A TREATISE ON THE EPIDEMIC PUERPERAL FEVER OF ABERDEEN in which, for the first time, puerperal fever was proclaimed a contagion. Gordon's contribution was little noted on the Continent so he escaped the defamation and the cynicism of his contemporaries in Europe; a misfortune that Semmelweis could not escape.

As Physician and Surgeon to the Infirmary of Aberdeen Gordon was in the thick of an epidemic of puerperal sepsis in the years 1790 to 1792. Twenty-eight of the seventy-seven cases died. Noting that the cases followed in the wake of certain doctors and midwives he reasoned that some sort of contagion was carried from case to case by the attendants. Reasoning from clinical and postmortem observations he arrived at the conviction that the disease was infectious. He counseled personal cleanliness on the part of the doctors and midwives and the fumigation of clothing and linens. It is to him that credit is due for being first to call attention to the contamination of wounds at the placental site —that puerperal fever is a wound contamination of the puerperal uterus.

"That the cause of this disease was a specific contagion of infection," said Gordon, "I have unquestionable proof—I had evident proofs of its infectious nature, and that the infection was as readily communicated as that of small pox or measles —I had evident proofs that every person who had been with a patient in the puerperal ward became charged with an atmosphere of infection, which was communicated to every pregnant woman who happened to come within its sphere. . . . These facts fully prove that the cause of the puerperal fever—was a special contagion or infection altogether unconnected with a noxious state of the atmosphere —Fresh air and cleanliness are insufficient for the destruction of contagion. There is no certain antidote but fire and smoke."

Gordon's influence with the populace was undermined by his insistence upon heroic purging and blood letting. He contended that he could abort the disease by such means if applied in full measure at the onset of the fever. "Hit hard and hit early," was his maxim. He contended that fumigation of the clothing and bedding and the washing of the hands of attendants were imperative but, above all, the patient must be purged and bled to the limit of her endurance. Be it said to his credit he did abandon blood letting at the insistence of the populace but continued on with the purging.

In our own country Oliver Wendell Holmes published a damning indictment against the medical profession in THE

New England Quarterly Journal Of Medicine And Surgery. This was in April, 1843, four years before Semmelweis published his historic treatise on The Cause, Concept And Prophylaxis Of Puerperal Fever.

Holmes' allegations were not based upon anatomical and clinical observations. He had little or no obstetric experience to back his assertions. His pronouncements were founded upon information that had come to him through personal correspondence and library research. Acting the role of a barrister pleading the cause of martyred mothers the genial autocrat of the breakfast table declared: "The balance must be struck boldly and the results declared plainly. If I have been hasty, presumptious, ill-informed, illogical; if my array of facts means nothing; if there is no reason for any caution in the view of these facts, let me be told so on such authority that I must believe it, and I will be silent henceforth, recognizing that my mind is in a state of disorganization. There is no quarrel here between men, but there is deadly incompatability and exterminating warfare between doctrines. Let the men who hold opinions look to it, if there is any voluntary blindness, any interested oversight, any culpable negligence, even, in such a matter, and the facts shall reach the public ear, the pestilence carrier of the lying-in chamber must look to God for pardon, for man will never forgive him."

The inimitable Holmes, academic physician and master rhetorician, gained undying fame here in the United States for his personal charm and matchless phrasing. But personality and faultless diction are no substitute for scientific research at the dissecting table and at the bedside. Holmes said puerperal sepsis could be prevented; Semmelweis proved that it could be.

Sir William Sinclair has this to say of the contribution of Holmes: "Here is the sum of the services of O. W. Holmes to obstetric science; as a science, it is a negligible quantity. But that Holmes conferred immense benefits on humanity by devoting his literary genius to attracting attention to puerperal fever and trying to suppress the practices which brought childbed fever in their train, is a fact which should be gratefully acknowledged.

"But how, in the name of truth, does all this bring him into any sort of conflict or even comparison with Semmelweis? Still is brought down upon him the most truculent attacks from obstructionists in the highest official positions. Hodge, Professor of Obstetrics in the University of Pennsylvania, attacked Holmes with a certain amount of dignity not unworthy of the subject, but Meigs, Professor of Midwifery in Jefferson Medical College of Philadelphia, assumed the old aboriginal American style of warfare, and attacked him with a tomahawk and scalping knife of the Red Indian savage. He astutely hit the taste of his fellow countrymen, their gambling propensities, and their religious sentiments by attributing puerperal fever to 'chance or Providence'."

While Holmes was making his passionate plea Semmelweis was in the Allgemeines Krankenhaus in Vienna, battling with the scourge of puerperal sepsis, and all the while exerting all possible means of checking its ravages.

Ignatz Philip Semmelweis was born in July, 1818 in the village of Ofen, a suburb of Budapest. He was the fourth of eight children; his father, a shopkeeper. His early training was deficient and all his life he was regarded by his critics as illiterate. After finishing grammar school in Ofen he enrolled in the University of Pest and two years later we find him in the Vienna School of Medicine where he remained one year and then returned for two more years to the University of Pest. His final year in medical school was spent in Vienna where he received his degree of Doctor of Medicine in April, 1844. In the following August he was granted the degree of Doctor of Midwifery.

July, 1846 found him in the First Lying-In Clinic of the Allgemeines Krankenhaus as First Assistant under Professor Klein. Referring to his first impression of the clinic Semmelweis said: "Everywhere questions arose; everything remained without explanation; all was doubt and difficulty. Only the great number of deaths was undoubted reality." It was here that he laid the foundation for the work that

was to immortalize his name.

His daily routine consisted of caring for the patients in the ward and the instruction of students. In the early morning it was his habit to participate in autopsies, particularly on the bodies of women who had died of puerperal fever. The students also participated in the dissections; and, all the while, in the wards, in the dead house and throughout sleepless nights, Semmelweis pondered over the tragedies enacted within his ward: "What is this fever?" "What is taking the lives of so many of my patients?" "How can it be prevented?" "How does it arise?" "What treatment can avail to hault the appalling death rate?" "Surely there must be something in the First Clinic that does not exist in the Second Clinic to account for the great discrepancy in the two wards. May it be that I and my students are the carriers of the contagion?"

While Semmelweis was brooding over his problem an event occurred that ultimately gave to him the answer to the questions that had so long defied solution. Kolletschka, Assistant in Anatomy, received a stab wound in his finger while dissecting. Death resulted from the infection. Semmelweis witnessed the autopsy and saw the identical lesions which he had so often observed in the bodies of the women who had died in his ward of puerperal fever. He reasoned that Kolletschka had died of a wound contamination; that the contaminating substance was decomposed animal organic matter.

"Day and night, this picture of Kolletschka's disease pursued me," wrote Semmelweis in his Etiology, "and I was obliged to acknowledge the identity of the disease from which Kolletschka died with the disease of which I saw so many puerpera die. It is not the wound, but the contamination of the wound by cadaveric material that caused the death." It was this same substance that was being carried to his patients from the dead house to the lying-in ward—it was being carried there by himself and his students. "God only knows," said he, "how many women I have prematurely brought down into the grave!"

Determined to put an end to the scourge that was ravishing his ward he gave orders that no students attending his ward could, at the same time, be in attendance on post mortem examinations; that before making examinations in his ward, the students must scrub their hands in a solution of chloride of lime.

Then the miracle happened. Within seven months the mortality from puerperal sepsis dropped from 11.4 per cent to 1.27 per cent. For the first time in the history of the hospital the mortality was lower in the First Clinic than in the Second Clinic where only Midwives were in attendance. In March and August of 1848 there was not a single death in the First Clinic.

The problem was solved to the satisfaction of Semmelweis, but it was quite another thing to convince his Chief and his colleagues and to have his Doctrine approved by the medical profession. This was the task he set himself to but, unhappily, it proved to be his undoing. Petty jealousies, stupidity and willful blindness were to hinder his every effort. With few exceptions the obstetricians on the Continent, in Britain, and in the United States, were committed to theories of their own and would have nothing to do with the new fangled notions of the Hungarian Assistant.

Semmelweis had weighed their theories in the balance and found one and all wanting. He reasoned that atmospheric changes, over crowding, faulty ventilation and diet were not the answer for these factors were identical in both the First and Second Clinics. Puerperal fever was not an epidemic, zymotic disease, like cholera and erysipelas, for such diseases show year-long intermissions while puerperal fever is more or less constant. Inflammation of the pelvic organs and the peritoneum was not the cause, but rather the result of the contagion. And as for the milk theory, he did not trouble to affirm or deny.

Among his detractors was his Chief, Professor Klein, who, far from proffering encouragement and counsel, had placed every possible obstacle in his path, and finally demoted Semmelweis to the rank of Private Docent of Theoretic Midwifery,

restricting his teaching to manikin demonstrations. No longer could he have access to the beds in his clinic.

Grieved and inconsolable Semmelweis left Vienna without serving notice and returned to his beloved Budapest. But Budapest was not the city he had left in such high hopes to pursue the study of medicine. Hungary was in a state of revolution and as with all things in Hungary the medical profession, the University, and the St. Rochus Hospital were in a state of disorganization. Obstetric cases were admitted to the hospital only two months in the year. In the remaining months surgical cases occupied the lying-in ward. The surgeon-in-charge was also the coroner, and engaged in autopsies. Puerperal fever had, for years, been running rife in the hospital. In some months the mortality ran as high as 30 per cent. Semmelweis asked permission to take over the direction of the Lying-In Clinic in order that he might put an end to the epidemics. And, in May 1851, he was placed in charge of the Obstetric Division of St. Rochus Hospital.

His first step was to sever all connections with the surgical department. The rules and regulations which he inaugurated in the Vienna Clinic were put in force and as a result the mortality from puerperal fever in his ward in the following five years fell to 0.85 per cent—an all-time low.

As Chief of the Lying-in Division of the St. Rochus Hospital Professor Birly, like Professor Klein, in Vienna, would have nothing to do with the "crazy notions" of Semmelweis. Birly was a disciple of the *Primae viae* theory and advocated the use of strong purgatives in the treatment of septic cases. To his credit Semmelweis made no issue with his Chief while quietly pursuing his course, trusting that in time his Doctrine would be accepted on its own merits.

Professor Birly died in 1855 and Semmelweis succeeded him as Professor of Theoretical and Practical Midwifery in the University of Pest. With the appointment came a rejuvenation of Semmelweis. Now, for the first time, he was his own master and was enjoying a measure of fame and the reward of a modest income from private practice.

But there were many handicaps and discouragements. The wards were too small to accommodate more than two hundred cases a year, yet it was always over crowded and there was no provision for the isolation of infected cases. For the lack of an amphitheatre students received instructions while standing in the corridor. The hospital staff was unfriendly and disloyal. Regarding their Chief a faddist and a crack pot they were unwilling to carry out the preventive measures so essential to the success of the clinic. Yet with all these handicaps the mortality from puerperal sepsis in the years 1850 to 1856 remained at 0.85 per cent—an unheard of record for St. Rochus Hospital.

To this time Semmelweis had not appeared in print in support of his Doctrine. As a result there was much misunderstanding and conjecture as to the essential principles he was advocating. His friends were insistent that he resort to the printed word to put at rest the bickering and the willful misrepresentations that sprang from sources that could not be ignored.

Semmelweis finally yielded to the demands of his friends and with resolute determination he set to the task of writing his "Etiology." "My doctrine," said he, "is either ignored or offensively assailed—Indignation at the greatness of this scandal has thrust the pen into my unwilling hand; I think it would be criminal behavior on my part if I were longer to remain silent and neglect producing unbiased, impartial and complete evidence in favor of the practical extension of my Doctrine."

For three years Semmelweis worked feverishly on his manuscript and in October 1860 it was ready for the press. We, of our time, regard the work one of the epic-making contributions to medical literature. Not because of its literary qualities—for in this respect, it was woefully lacking—but because of the fundamental principles laid down that have formed the basis for preventive medicine in the field of obstetrics and surgery.

Much of the text was hurriedly assembled without regard for sequence and

symmetry, thus leading to confusion. An endless array of statistics was incorporated in the text that few would care to wade through. Then, too, much of the text was devoted to acrimonious correspondence with the leading obstetricians of Europe. These letters were full of charges and counter charges, of censure and reflection, and to an extent that defeated the very purpose of his writing—that of winning converts to his Doctrine. The chapter devoted to Etiology and to Prophylaxis were brief and excellent. Had Semmelweis been content with these two chapters, leaving out much of the statistical material and all of the challenging correspondence, his work would have received a more favorable reception. But, being what it was, it was not well received. On the contrary it only served to add fuel to the flame.

Enraged over the unfavorable reception of his "Etiology," Semmelweis set to the task of writing "OPEN LETTERS TO SUNDRY PROFESSORS OF OBSTETRICS." He would make one more effort to indoctrinate his traducers in what he believed to be the only true nature of puerperal fever. "I shall do my utmost," said he, "to insure the cessation of murder, for anyone who dares disseminate the dangerous fallacies concerning puerperal fever will find in me an extremely active opponent. I am firmly convinced that there is no other way of putting a stop to those murders than the ruthless exposure of my adversaries and no one whose heart is in the right place will blame me for the means I use."

From that moment to the day of his death Semmelweis engaged in an unremitting verbal combat with his critics, but the more he fanned the flame of calumny the more he became involved in controversy.

"The controversy," said Waldheim, "became no longer a scientific encounter, no struggle to attain to a knowledge of the truth, but a thoroughly personal, hateful wrangling under the semblance of scientific discussion."

Wounded pride and deep resentment led Semmelweis into criminations and personalities that served to alienate rather than to placate his opponents. Karl Schroeder regarded the Semmelweis Doctrine as one sided and inadequate, and Max Boeler referred to the Open Letters, which Semmelweis addressed to sundry Professors, as extremely vehement and threatening. Joseph Spaeth, while professing his conversion to the Semmelweis "Doctrine," expressed the opinion that his theory would have gained more obstetricians as open friends if he had not defended his theory in a tone which no man of science had been accustomed to up to this time. Carl Braun, Vischow, Zipfel, Siebold, Veit, Hecker, Scanzoni and Denman were among his critics. Kiwish, of Wurzburg, would not be convinced, though in the year 1846 the mortality from puerperal fever in his ward was 26 per cent. Denman of the Dublin Rotunda said it would be a waste of time to dwell upon his Lehre. On the other hand Haller, Skoda and Rokitansky of Vienna; Michaelis and Swarz of Kiel; Wieger of Strassburg; Kassmaul of Heidelberg, and Tilanus of Amsterdam, were among his supporters. Hebra rated the contribution of Semmelweis as comparable to that of Jenner. But even these men of high authority could not stem the tide of criticism. Hebra published a commendatory article in the Journal of the Medical Society of Vienna that was roundly criticized and Skoda failed in having the Doctrine of Semmelweis investigated by the same society. Weigner, of Strassburg, endeavored to interest the French accoucheurs and failed, as did Arneth before the London Academy of Medicine. Everywhere Semmelweis was to feel the sting of professional intolerance.

Exasperated by the opposition Semmelweis declared: "I have resolved to attack unsparingly all who dare to spread error regarding puerperal fever." To Professor Spaeth he wrote: "The Professor has given me the impression that his spirit has not been lighted up by the puerperal sun which arose in Vienna in 1847." And to Scanzoni of Wurzburg, then the leading obstetrician of Europe, Semmelweis wrote: "You have sent over all Germany a considerable contingent of practitioners who will, in their ignorance, engage in homicidal practice. I have formed an unshakable resolution to put an end to the mur-

derous work as far as lies in my power to do—I denounce you before God and the world as a murdered, and the history of puerperal fever will not do you an injustice when for the service of having been the first to oppose my teachings it perpetuates your name as a medical Nero." Such vitriolic expressions could hardly serve their intended purpose, that of winning converts to his "Doctrine."

There came a time when the sensitive, impetuous nature of Semmelweis was unequal to the strain of violent controversy. In the early part of 1863 he began to have alternate attacks of excitability and melancholia; his memory failed him and his mind became clouded. He lost his professorship at St. Rochus, and in August 1865 he was taken by his faithful friend, Professor Hebra, to an insane asylum in Vienna. There he died of a septic infection August 13, 1865 at the age of 47. The autopsy revealed a gangrenous wound in the finger of his right hand acquired in a surgical operation, lymphangitis in the right arm, metastasis in the eye, pyo-pneumothorax, and an extensive brain lesion. He died, as did his friend Kolletschka of the very disease he himself had sacrificed his life to conquer. May it not have been said of him as it was said of the Man of Galilee: "He saved others — Himself he cannot save."

Appended to his Etiology Semmelweis had written: "When I, with my present convictions, look back upon the past, I can only dispel the sadness which falls upon me by gazing into the happy future when within the lying-in hospitals and also outside of them, throughout the whole world, only cases of self-infection will occur. But if it is not vouchsafed for me to look upon that happy time with my own eyes, from which misfortune my God preserve me, the conviction that such a time must inevitably sooner or later arrive will cheer my dying hour."

Puerperal sepsis has not been wholly banished from the world as Semmelweis prophesied, but the principles laid down by him for its prevention have gone far in lessening the incidence of the malady. Semmelweis bequeathed to the modern maternity its supreme virtue—that of cleanliness. Furthermore, subsequent events have not altered the basic principles laid down by him on which the Doctrine of Semmelweis was founded. The contributions of Pasteur and Lister elucidated and confirmed his Doctrine.

His temporary burial was in Vienna, but later he was laid to rest in his native city of Budapest. In the garden of the Allegmeines Krankenhaus in Vienna is a marble slab erected to the memory of the most tragic figure in the history of medicine. And on the slab is a beautiful bronze tablet bearing the name *Semmelweis.*

In 1896 an international monument was erected in Budapest in memory of the man to whom the world is indebted for his priceless contribution to humanity. There Semmelweis stands in full stature, holding a book under his arm and on the step of the pedestal sits a woman with her infant in her arms, her face upturned, gazing reverently at her benefactor.

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons revers the name of Semmelweis, and unites with all obstetricians, the world over, in paying tribute to him on this the one hundredth year of his Doctrine, and the eighty-second year of his passing.